

1.0 INTRODUCTION

This report provides a relative risk assessment of four management options for treated municipal wastewater in South Florida. The four wastewater management options evaluated by the study are the following:

- Disposal via deep-well injection
- Aquifer recharge
- Ocean outfall disposal
- Disposal via surface-water discharge.

The study described in this report compiles new and existing sources of information and provides an evaluation of potential human health and ecological risks associated with the four wastewater management options studied.

1.1 Congressional Mandate

This study was conducted in response to a Congressional mandate included in the fiscal year 2000 appropriation language:

Within available funds, the conferees direct EPA to conduct a relative risk assessment of deep-well injection, ocean disposal, surface discharge, and aquifer recharge of treated effluent in South Florida, in close cooperation with the Florida Department of Environmental Protection and South Florida municipal water utilities.

1.2 Purpose

There is an immediate need for information that will assist EPA, Florida regulatory agencies, and concerned stakeholders to determine an appropriate course for proposed revisions to rules concerning Class I underground injection wells in South Florida. These wells inject treated wastewater below the lower most underground source of drinking water and the surficial aquifers that provide much of Florida's drinking water. Groundwater monitoring information indicates that the injected wastewater has migrated from the injection zone into overlying layers of the subsurface. Stakeholders have expressed concern that such migration may compromise drinking-water sources.

This risk assessment will provide information that regulators, utilities, and communities in South Florida can use to make informed judgments and decisions regarding wastewater management.

Wastewater management involves complex and interrelated issues, many of which are beyond the scope of this risk assessment. Examples of such complex issues include modified wastewater management approaches, changes in the required level of treatment, encouraging flexibility in use of management options and backup methods, economic comparisons relating risks to management costs, and consideration of water conservation

and water quantity. However, a risk assessment that takes all of these issues into account would far exceed the scope and available resources for this study. Accordingly, this risk assessment has been designed to address the Congressional mandate directly. It does not attempt to assess the full range of risk-related considerations that figure into wastewater management decision-making.

Because the purpose of the study is to characterize potential risks to human health and the environment, this study does not incorporate an analysis of cost-effectiveness. As a result, operational lifespan, implementation and maintenance costs, and other economic issues will not be assessed. However, the potential for system failure for each of the four wastewater management options will be addressed, with particular emphasis on the potential for failure of deep injection wells.

The geographic area covered in this study includes areas south of a line drawn from the northern end of Brevard County west to the northern end of Pinellas County (figure 1–1). In an effort to focus data collection within areas exhibiting the most urgent wastewater management needs, the heavily populated counties of Dade, Palm Beach, Broward, Pinellas, Brevard, Sarasota, and Hillsborough were selected.

EPA acknowledges that this study area may or may not be entirely consistent with what has been traditionally considered as South Florida. However, EPA collected data and conducted this risk assessment within a study area that provides for the fullest and most informative evaluation of the human health and ecological risks associated with the four studied management options.

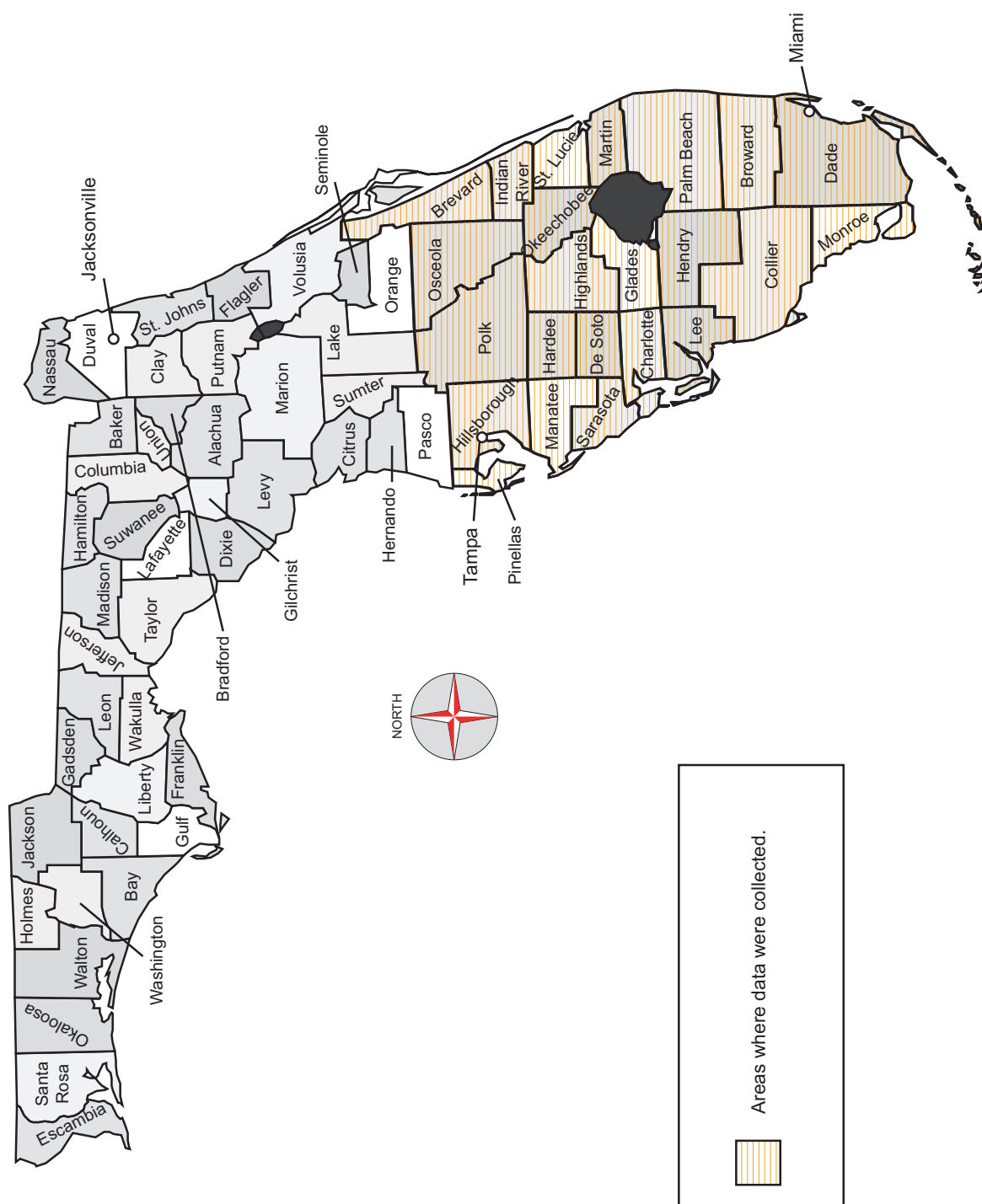


Figure 1-1. The South Florida Study Area

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